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10/674,639	09/30/2003	Alisdair J. Brown	2002M012	4694

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EXAMINER

THEXTON, MATTHEW

ART UNIT PAPER NUMBER

1714

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/674,639

Applicant(s)

BROWN ET AL.

Examiner

Matthew A. Thexton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 16, 17 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 18 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date one sheet.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Information Disclosure Statement

The IDS submitted 2003 September 30 has(have) been considered.

Election/Restrictions

Applicant's election without traverse of Group 1 and the species (a) zinc salt of reaction product of phosphorus sulfide and a mixture of 4-methyl-2-pentanol and dipropylene glycol and (b) molybdenum dicoco-dithiocarbamate in the reply filed on 2006 March 3 is acknowledged.

Claims 16, 17, and 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 2006 March 3.

The elected combination of species is **allowable**.

Other species have been examined and searched. Rejections appear hereinbelow.

Claims Version

The listing of claims as originally filed has been examined.

Claims Analysis

Claim 1 is directed to lubricant mixtures comprising:

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(A) an oil-soluble or –dispersible salt of a dihydrocarbylthiophosphoric acid

derived or derivable from the reaction of:

(I) at least one compound (P) having at least two groups

independently selected from hydroxyl and sulfhydryl,

wherein there is (sic) at least four atoms separating the two groups, or

(II) at least one compound (P) as defined in (I) and at least one

compound (M) which is different from (P) and has at least one group selected from hydroxyl and sulfhydryl, with

phosphorus sulfide;

(B) an oil-soluble or –dispersible molybdenum compound; and

(C) a major amount of an oil of lubricating viscosity.

Claims 2-15 depend directly or indirectly from claim 1 and specify or further limit: the scope of (II); the proportion of (II) relative to (I); the scope of (I); the scope of the salt moiety; the scope of (B); the amount of phosphorus in the mixture; simple methods of making or using.

Claim 18 depends from claim 17, which depends from independent claim 16, which is directed to salts similar to (A) of claim 1 but where (P) further has at least one atom in the separating group selected from oxygen, sulfur, and nitrogen; and wherein claim 18 further comprises a diluent fluid and one or more co-additives. Diluent fluid is interpreted to encompass oil of a lubricating viscosity.

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Claim 19 depends from claim 17 and further comprises a major amount of an oil of lubricating viscosity.

Claim Objections

Claims 1-15 are objected to because of the following informalities: Claim 1, line 8, has a comma after "atoms" which appears to be a typographical error. Claim 1, line 8, concludes with "separating two" which is interpreted to mean "separating said at least two." Claim 3, line 1, concludes with "of of...." Claim 6, line 2, states "separating two groups" which is interpreted to mean "separating said at least two groups...."

Appropriate correction is required.

Claims 1-15, 18, and 19 are objected to under 37 CFR 1.75(i) as being in improper form because each of a plurality of elements or steps of the claim should be separated by a line indentation. See MPEP § 608.01(m). In claim 1, the element lacking indentation is the "major amount of an oil...." Claims 13, 18, and 19 are lacking of any indentations.

Claim 13 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claim does not

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contain all the limitations of claim 1, specifically lacking is the "major amount of an oil...."

Claim 17 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation "optionally a diluent fluid" does not further limit the claim from which this claim depends.

Double Patenting

Applicant is advised that should claim 3 be found allowable, claim 4 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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Claims 1-15, 18, and 19 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the dihydrocarbylthiophosphoric acids obtained from the indicated reactants, does not reasonably provide enablement for acids "derived" therefrom or for acids "derivable" by some other method. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. It would require undue experimentation to determine the scope of the claims.

Ex parte Tanksley 26 USPQ 2nd 1389

"A claim is indefinite if undue experimentation is involved to determine boundaries of protection".

This rationale is applicable to polymers obtainable by a stated process because any variation in any parameter within the scope of the claimed process would change the polymer produced. One who made or used a polymer made by a process other than the process recited in the claim would have to produce polymers using all possible parameters within the scope of the claims (temperature, pressure, diluents, component ratios, feed ratios, etc.) and then extensively analyze each product, to determine if his polymer was obtainable by a process within the claimed process.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6, 8-15, 18, and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1 and 16, each independent, recite in pertinent part "which acid is derived or derivable from the reaction of...." Both "derived" and "derivable" encompass dihydrocarbylthiophosphoric salts

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which are different from those acids which would be "obtained from the reaction..." and thus render the claims indistinct.

The following are supporting decisions for rejecting "obtainable" and similar terms as indefinite.

1. Atlantic Thermoplastics Co. Inc. v Faytex Corp. 23 USPQ 2nd 1481 (1486).

In footnote 6, on page 1486, referring to *Cochrane v Badische Aniline and Soda Fabrik (BASF)*, 11 US 293, the court stated "...because artificial alizarine can take different forms, BASF's claim would be indefinite unless limited to the described process".

The claim referred to is

"Artificial alizarine produced from anthracene or its derivatives by either of the methods described herein or any other method producing a like result."

2. Ex parte Tanksley 26 USPQ 2nd 1389

"A claim is indefinite if undue experimentation is involved to determine boundaries of protection".

This rationale is applicable to polymers obtainable by a stated process because any variation in any parameter within the scope of the claimed process would change the polymer produced. One who made or used a polymer made by a process other than the process recited in the claim would have to produce polymers using all possible parameters within the scope of the claims (temperature, pressure, diluents, component ratios, feed ratios, etc.) and then extensively analyze each product, to determine if his polymer was obtainable by a process within the claimed process.

3. Purdue Research v Watson 1959 CD 124 (Dist Ct) affirmed by CCPA 120 USPQ 521.

"Preparable by" was held to not particularly point out and distinctly claim the invention.

"When one has produced a composition of matter where it is not possible to define its characteristics which make it inventive except by reference to the process by which it is produced, one is permitted to so claim the composition produced by the process referred to in the claims. When the composition is thus claimed in terms of the process of its preparation, the product cannot be defined in such a manner as to assert a monopoly on the product by whatever means produced.

35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections

Claims 1-14, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colclough (EP 322235A2) in view of McConnachie et al. (WO 99/31113A1).

The present claims are broadly discussed hereinabove in the section ***Claims Analysis*** which is incorporated by reference.

The reference '235 discloses metal dithiophosphates which dithiophosphates are prepared by reacting phosphorus pentasulfide with a mixture of alcohols in which one is aliphatic mono-ol and the other may be an ether diol (page 2, lines 32-55), which is useful in lubricants as an antioxidant (page 3, lines 54-5). The ether meets the limitation of claim 7. Combinations with other lubricant additives such as friction modifiers, anti-wear agents is suggested (page 9, lines 35-40).

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'113 discloses oil-soluble or –dispersible trinuclear molybdenum-sulfur compounds, example 1 corresponding to Applicant's specie for oils 7 and 8 in the present specification (page 24), and which provide anti-friction, anti-wear, anti-oxidant, reduction of fuel consumption benefits to lubricants (page 2, last paragraph, page 3, first paragraph). Combinations with lubricants and other lubricant additives such as anti-oxidants is suggested (page 6, lines 22-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine these additives in view of the mutual suggestions to do, thus arriving at embodiments encompassed by Applicant's claims.

Claims 1-14, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colclough (EP 322235A2) in view of Leta et al. (US 6358894B1).

The present claims are broadly discussed hereinabove in the section **Claims Analysis** which is incorporated by reference.

The reference '235 discloses metal dithiophosphates which dithiophosphates are prepared by reacting phosphorus pentasulfide with a mixture of alcohols in which one is aliphatic mono-ol and the other may be an ether diol (page 2, lines 32-55), which is useful in lubricants as an antioxidant (page 3, lines 54-5). The ether meets the limitation of claim 7. Combinations with other lubricant additives such as friction modifiers, anti-wear agents is suggested (page 9, lines 35-40).

'894 discloses oil-soluble or –dispersible trinuclear molybdenum-sulfur compounds, example 1 corresponding to Applicant's specie for oils 7 and 8 in the

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present specification (page 24), and which provide anti-friction, anti-wear, anti-oxidant, reduction of fuel consumption benefits to lubricants (examples). Combinations with lubricants and other lubricant additives such as anti-oxidants is suggested (column 5, lines 3-4 examples).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine these additives in view of the mutual suggestions to do, thus arriving at embodiments encompassed by Applicant's claims.

Citation of Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Horodysky (US 4450096) discloses metal salts of dialkyldithiophosphates made from vicinal diols which are not encompassed by Applicant's dialkyldithiophosphates.

Wiley et al. (US 3944495) discloses metal salts of dialkyldithiophosphates made from oxygen interrupted alcohols for use in automatic transmission fluids.

Lilburn (US 4259192) discloses metal salts of dialkyldithiophosphates made from oxygen interrupted alcohols none of which is a polyol.

Goldsmith (US 3029268) discloses metal salts of dialkyldithiophosphates made from sulfur interrupted alcohols none of which is a polyol.

Colclough (US 5013465) claims the same priority as EP 322235A2.

Citation of Pertinent Prior Art Disclosing Non-Elected Species

Brown et al. (CA 2342434A1), corresponds to EP 1138686, cited by Applicant (page 14, line 18) as disclosing trinuclear molybdenum-sulfur compounds useable in the present invention. '434 discloses alternative methods of making trinuclear molybdenum compounds having (coco-dtc) ligands.

Boffa (US 6143701A) discloses trinuclear friction modifying molybdenum compounds for use in lubricants in which the ligands can be selected from alkyl C8 to C18 (column 1, lines 50-64). Such is encompassed by Applicant's claimed component (B). Other additives for lubricants are suggested including metal salts of dihydrocarbyldithiophosphates (column 6, line 53 to column 7, line 7) made from one or more alcohols reacted with phosphorus pentasulfide, as anti-wear and antioxidant agents.

Boffa (US 5892779A) discloses trinuclear friction modifying molybdenum compounds for use in lubricants in which the ligands can be selected from alkyl C8 to C18 and preferably coco alkyl chain (column 2, line 67 to column 3, line 5). Such is encompassed by Applicant's claimed component (B). Other additives for lubricants are suggested including metal salts of dihydrocarbyldithiophosphates (column 6, lines 20 to 41) made from one or more alcohols reacted with phosphorus pentasulfide, as anti-wear and antioxidant agents.

Kadkhodayan et al. (US 5380448A) discloses antioxidants for lubricating oils comprising metal salts of dialkyldithiophosphoric acid made by reacting phosphorus

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pentasulfide with mixture of alcohols in which one or more may be a polyol (column 3, lines 8-63).

Kadkhodayan (US 5384054A) discloses antioxidants for lubricating oils comprising metal salts of dialkyldithiophosphoric acid made by reacting phosphorus pentasulfide with mixture of alcohols in which one or more may be a polyol (column 2, line 36 to column 4, line 6).

Adams et al. (US 5627294A) discloses antioxidants for lubricating oils such as crankcase oils (column 7, lines 33-38) comprising metal salts of dialkyldithiophosphoric acid made by reacting phosphorus pentasulfide with mixture of alcohols in which one or more may be a polyol and may have nitrogen, oxygen or sulfur in the chain (column 3, line 37 to column 4, line 26). Combinations with other lubricant additives such as friction modifiers, anti-wear agents is suggested (column 7, lines 39-50).

Bloch et al. (US 5919740A) discloses antioxidants for lubricating oils comprising metal or oil-soluble amine salts of dialkyldithiophosphoric acid made by reacting phosphorus pentasulfide with mixture of alcohols in which one is a polyol and the other aliphatic monohydric alcohol (column 1, lines 42-67, example 1). Combinations with other lubricant additives such as anti-oxidants and anti-wear agents is suggested (column 3, line 43 to column 4, line 16).

Hill et al. (CA 2342433A1) corresponds to EP 1138752, cited by Applicant (page 14, line 18) as disclosing trinuclear molybdenum-sulfur compounds useable in the present invention. '433 discloses oil-soluble or -dispersible polynuclear molybdenum compounds for use in lubricants for antiwear, antioxidant, and friction-reducing

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properties (page 2, line 15 to page 3, line 18) in which the ligands improve the solubility or dispersibility and can be selected from a group which includes (coco2dtc) (pages 4-5, example 2). Other additives for lubricants are suggested including zinc salts of dialkyldithiophosphates (page 8, lines 13-25).

Love et al. (US 4778906) discloses antioxidants for lubricating oils comprising metal salts of dialkyldithiophosphoric acid made by reacting phosphorus pentasulfide with mixture of alcohols in which a minor amount is a polyol (such as 1,6-hexanediol) and the other aliphatic monohydric alcohol (column 2, lines 22-62, examples 10-11) for use in crankcase lubricating oil (column 1, lines 63-66).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew A. Thexton whose telephone number is 571-272-1125. The examiner can normally be reached on Tuesday-Friday, 9:30 to 7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan S. Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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